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ABSTRACT

This paper discusses interactivity enabled by two-way technologies providing real-time exchanges of audio, video, text, and graphical information among distributed participants, as one of distance learning's primary identifying characteristics. Background is provided on interaction agents, including three types of instructional interactions--interactions between the learner and the instructor, interactions among learners, and interactions between learners and content. Interaction outcomes are summarized; the two purposes of interactions in this context are to change learners and to move learners toward an action state of goal attainment. The following types of categories that focus on what learners are to achieve as a result of an interaction are then described: participation; communication; feedback; elaboration; learner control/self-regulation; motivation; negotiation; team-building; discovery; exploration; clarification; and closure. The paper concludes with a discussion of applying interaction in practice. (DLS)

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Interaction Strategies for Online Training Designs

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Introduction

In the world of distance learning, very few topics have generated as much discussion and debate as has the construct of interaction. Distance learning practitioners tend to view interaction as the single most significant attribute that defines a contemporary distance learning experience. That is, the interactivity enabled by two-way technologies providing real-time exchanges of audio, video, text and graphical information among distributed participants serves as one of distance learning's primary identifying characteristics.

Interaction Agents

In attempting to bring a measure of order to discussions of interaction, Moore (1989) offered a schema in which he identified three types of instructional interactions:

- Interactions that occur between the learner and the instructor.
- Interactions that occur among learners.
- Interactions that take place between learners and the content they are trying to master.

One of the benefits that this schema offered designers, implementers and administrators of distance learning programs over the past decade is that it has provided a sense of direction to the transactions that are typically involved in a distance learning endeavor. Furthermore, Moore's interaction schema implied purpose, intent and/or intended outcome of an interaction by virtue of indicating *who or what* was to be involved in a transaction. However, the explicit description of an interaction's purposes, intents and outcomes were still left to one's imagination. Moore's schema did not really describe the intended outcomes of interactions. Instead, it identified the agents involved in or impacted by a given interaction. In other words, it described with whom—or with what—interactions will occur, within the context of a specific distance learning transaction.

Given the logarithmic explosion of technology capacities in the past decade, combined with the integration of interactive technologies in just about every facet of contemporary life, it may be that focusing on real-time, technologically-enabled interactivity as a defining attribute of distance learning may be an artifact of the past. The value of interactive technologies as a resource for extending the reach of instruction and information can now more easily emerge as a means to an end. The earlier emphasis upon the agents of an interaction can now help set the stage for a more meaningful discussion of the outcomes enabled by a variety of types of interactions.

Interaction Outcomes

When focusing upon interaction outcomes rather than interaction agents, interactions can more effectively serve as a means to the ends of learning and performance improvement. In this context, interactions have two purposes:

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- They must change learners.
- They must move learners toward an action state of goal attainment.

By emphasizing the outcome of an interaction, it is easier to see the impact that an interaction has on learners. Interactions enable the active learner participation in the instructional/training/performance improvement process. They allow learners to tailor learning experiences to meet their specific needs or abilities. Interactions enable clarification of a new idea and promote transfer of new ideas to already held concept frameworks. Interactions promote intrinsic motivation on the art of a learner by highlighting the relevancy that new information may have under specific circumstances.

Types of Interactions

Wagner (1997) has identified a number of interaction categories by focusing on what learners are to achieve as a result of an interaction:

- **Interaction for participation:** Interaction for participation provides learners with a means of engagement. In its simplest state, this may mean meeting fellow learners for the first time so that the basic level at which human relationships occur is established. In its more complex states it may emphasize the willingness of individuals to assume leadership responsibilities for members of their particular cohort group.

- **Interaction for communication:** This kind of interaction features opportunities to share information and opinions, or to intentionally influence the opinions or beliefs of others, all of which are particularly germane when working in instructional, training and/or performance support settings. It includes clearly articulating expectations, offers opportunities for personal expression, encourages information exchange without fear of being judged or punished, may help persuade an individual to subscribe to a particular point of view.

- **Interaction for feedback:** This refers to any information that allows learners to judge the quality of his or her performance. Wagner's (1994) review of feedback literature refers to a variety of conditions of feedback, noting that feedback tends to be considered from two differing perspectives. From a behavioristic perspective, feedback provides reinforcement, which is intended to correct and direct performance. Cognitivists suggest that feedback provide learners with information about the correctness of a response so that they can either determine if a response is right or wrong, or to allow learners to correct an incorrect response so that long-term retention of correct information is enabled. In either case learners need to obtain information from a variety of sources (from instructors, from other learners, from their own observations, from information resources) from which they can then judge the quality of their own performance.

- **Interaction for elaboration:** From a cognitive perspective, elaborating on information (that is, coming up with alternative examples to explain a new idea, or developing alternative explanations for why an idea may be framed in a particular way) makes new information more meaningful for learners. By expanding, or even manipulating a bit of information associated with a given idea, it is easier to recognize all of the various conceptual "hooks" that may be associated with that information. The extra

cognitive "practice" that results from generating alternative interpretations make it easier for learners to integrate new information in their existing cognitive framework. Learners are then better able to develop their own mnemonic devices to improve the ways that they actually process new information for long-term retention and recall.

- **Interaction for learner control/self-regulation:** Interaction provides learners with the information needed to manage the depth of study, range of content covered, type of alternative media needed for information presentations and time actually spent on a specific learning task. McCombs and her colleagues (1992) have noted that the depth and breadth of information processed, as well as what and how much is learned and remembered, are influenced by the following factors:

  - Self-awareness and beliefs about personal control, competence and ability.
  - Clarity and salience of personal values, interests and goals.
  - Personal expectations for success and failure.
  - Affect, emotion, and general states of mind and the resulting motivation to learn.

  Interaction for learner control or self regulation is particularly important for preparing individuals to be life-long learners, particularly if learning is to take place in a distant or a distributed learning context. Learner control and self-regulation deal with the ability of a learner to keep himself or herself "on task," to mediate the need for additional information to complete one's understanding of a new idea, and to recognize when the learning task has been completed.

- **Interaction for motivation:** Curiosity, creativity and higher order thinking are stimulated by relevant, authentic learning tasks of optimal difficulty and novelty for each student. Intense negative conditions and emotions (e.g., feeling insecure, worrying about failure) can thwart this enthusiasm. The degree to which a learner can ascertain the presence or absence of negative factors will have a direct impact on his or her ability to learn. This is why it is important for learners to have opportunities for making these determinations through a variety of information sources, such as asking questions, clarifying statements, reviewing guidelines and so on.

- **Interaction for negotiation:** Determining the willingness of another individual to engage in a dialogue, to come to consensus, or to agree to conform to terms of an agreement are all examples of interactions for negotiation. Negotiations in learning are particularly relevant in a time where constructivist learning models allow individuals to capitalize upon their own (appropriate) interpretations of reality to enhance relevancy, motivation and application. Being able to clearly articulate the terms of a learning agreement sets the stage for subsequent action. If such terms have not been defined and agreed to, the likelihood of achieving a successful outcome is greatly reduced.

- **Interaction for team-building:** Interaction for team-building is necessary to ensure that individual members of a team actively support the goals of the group. Interactions facilitate such desirable behaviors as recognition and acceptance of individual differences, expression of respect for the team as well as for its members, effective listening, a shared sense of responsibility and the ability to confirm expectations within the group.

- **Interaction for discovery:** It is highly unusual for new discoveries to occur in an intellectual vacuum. This category of interaction refers to the cross-fertilization of ideas that occurs when people share their ideas and perspectives with one another in the pursuit of defining new constructs.

- **Interaction for exploration:** Closely related to "interaction for discovery," interaction for exploration provides a vehicle for defining the scope, depth and breadth of a new idea. Just as it is important to recognize a new idea, it is also important to distinguish a new idea from extant ideas, and to determine parameters within which a new idea will retain its unique identity. This category of interaction helps define the parameters within which such distinctions can be made.

- **Interaction for clarification:** This relates to the ability to navigate one's way through a sea of performance expectations that may or may not be clearly articulated. An example of this category of interaction may include but is not necessarily limited to determining if one's person interpretation is what another person actually intended by restating an expectation in one's owns words.

- **Interaction for closure:** Just as learners need to know where to begin a specific learning endeavor, learners also need to know when they are done with the endeavor. In an era marked by having access to almost limitless information resources, the ability to "bound" an activity is critical, whether one is writing a term paper or staying "in scope" on a contracted project. This means being able to determine what expectations exist and to also determine when those expectations have been met. It is a rare individual who can make these determinations without engaging in dialogue.

Applying Interaction in Practice

Using the categories of interaction noted above as conceptual benchmarks, it is fairly easy to make the case that interaction (in any one of its many exemplifications) is a necessary ingredient for a quality learning experience. What is not so clear, at least not when viewing interaction as an independent construct, is the value that interaction brings to a learning endeavor when interaction is viewed out of the context of a specific learning endeavor. For example, one might attempt to quantify the amount of interaction that is needed to ensure the quality of a learning experience. One may be interested in determining how often interaction should occur for a learning experience to be effective. There may even be some interest in determining what types of interaction are the most effective. However, if any of these attempts are made, it is hard to imagine that the results of these inquiries will offer any useful insights or understanding unless there is context available to help interpret those metrics.

The best rule of thumb for effectively designing an interactive learning experience—whether it happens to be distance learning, online learning or face-to-face, instructor-led learning experiences—is to first consider the goals and objectives of a specific learning experience. From this perspective, it is both far more appropriate and effective to begin the process of selecting strategies and tactics needed to achieve the desired ends of the learning experience, for the specific audience at hand, given the specific conditions likely to be encountered in a given setting. In this way, interaction can serve as an outcome of clearly conceptualized, well designed, and well developed instruction and training.

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